EDITORIAL

WITH the death of Dr. Joseph Le Conte there has passed away perhaps the last distinguished American representative of the general geologist as typified during the past century. This passing type of the general geologist was a distinctive outgrowth and representative of a transitional stage of intellectual procedure—a passage from the former mode in which the generalizing and philosophical factors held precedence and the toilsome modes of scientific verification followed as their servitors, to the present or at least the coming method in which scientific determinations are the basal factors to which generalizations and philosophies are but dependent accessories. We owe much of the transition itself to Dana and Le Conte, the two noblest American representatives of the passing type, for while they grew up under the influence of the older intellectual attitude, they grew out of it in spirit while they steadied and guided the transition. They were distinctively students of geology in the special sense in which that term implies the organized *doctrine* of the earth, rather than students of what might be termed *geics*, the immediate study of the earth itself in the field and the laboratory. They were preëminently students of the accumulated data and of the literature of the science, with generalization and philosophic inference as their dominant inspiration. Neither Dana nor Le Conte were eminently field students; much less were they specialists in a chosen field of the broad geological domain. Their point of view was that of the organizer and of the philosopher, and the contribution they made in their chosen sphere was indispensable and immeasurably valuable. How this necessary function is to be met in the future, with the increasing complexities and profundities into which every branch is rapidly growing, it is difficult to foresee, further than that it must in some way be intimately associated with extensive personal researches in the field and the laboratory, and must be guided

by a reversal of the old-time attitude of philosophy and science toward each other. The philosophical factor must be put into service as the active handmaid of scientific determination rather than as its guide and leader. It may indeed go before as scout to roughly reconnoiter the way, and it may come after to assemble and interpret the results, but it must ever be tentative and dependent on rigorous scientific determination. Deduction, inference, interpretation, theory, hypothesis, and the other philosophical factors must be merely initial steps and sequential steps attendant on rigorous science as the end. None the less, the philosophical factors and the philosophical point of view are indispensable if the science is to make its most wholesome progress, and we owe to Le Conte and to those he typifies an immeasurable debt, for they have kept us in fresh touch with the generalizations and the philosophy of the science, and have inspired us with their own contributions to the broader conceptions of geology and of its relations to kindred sciences. The writings of Le Conte are graced by the fruits of wide learning, a lucid style, a genial attitude, and a candor that has called forth universal love and admiration. T. C. C.

THE progress of opinion in regard to the origin of the solar system, and incidentally of the earth, is indicated by the following recent utterances of astronomers of high rank:

This simple hypothesis (Laplace's nebular hypothesis) has recently been severely attacked, and it is doubtful whether it will survive the blow. Indeed, we may be compelled to seek the origin of stellar systems in the spiral nebulae, which Keeler's photographic survey made just before his death showed to represent a true type form. It is evident that much remains to be done before the mystery which surrounds the genesis of stars can be cleared away.— PROFESSOR GEORGE E. HALE, Director Yerkes Observatory, in address to Visiting Committee, *University Record*, June 28, 1901, p. 141.

Though, without doubt, the system was evolved in some way from a primitive nebula, we may say with certainty that it did not follow the orderly course marked out for it by Laplace.— PROFESSOR C. L. DOOLITTLE, of the University of Pennsylvania, in annual address delivered before the University of Pennsylvania chapters of the Society of Sigma Xi, June 13, 1901, printed in *Science*, July 5, 1901, pp. 11–12.